• $z^2 - (5-i)z + 8 - i = 0$

$\Delta = (5-i)^2 - 4(8-i)$

$= (24 - 10i) - 32 + 4i$

$= -8 - 6i = -(8+6i) = (3i-1)^2$

$\sqrt{\Delta} = 3i - 1$

d'où $z_1 = \dfrac{+5 - i - 3i + 1}{2} = 3 - 2i$

$z_2 = \dfrac{5 - i + 3i - 1}{2} = 2 + i$

$S_{\mathbb{C}} = \{ 3 - 2i ; 2 + i \}$

• $z^2 + 4(i-1)z + 2(4-i) = 0$

$\Delta' = 4(i-1)^2 - 2(4-i)$

$= 4(-2i) - 8 + 2i$

$\Delta' = -8 - 6i = (3i-1)^2$

Alors $z_1 = \dfrac{-2(i-1) - (3i-1)}{2} = \dfrac{3}{2} - \dfrac{5}{2}i$

$z_2 = \dfrac{-2(i-1) + (3i-1)}{2} = \dfrac{1}{2} + \dfrac{1}{2}i$

$S_{\mathbb{C}} = \left\{ \dfrac{3}{2} - \dfrac{5}{2}i ; \dfrac{1}{2} + \dfrac{1}{2}i \right\}$

• $z^2 + (1-3i)z - 2(1+i) = 0$

$\Delta = (1-3i)^2 + 8(1+i)$

$= -8 - 6i + 8 + 8i = 2i = (1+i)^2$

d'où $z_1 = \dfrac{3i - 1 - 2i}{2}$; $z_2 = \dfrac{3i - 1 + 2i}{2}$

$z_1 = -\dfrac{1}{2} + \dfrac{1}{2}i$ $\quad$ $z_2 = -\dfrac{1}{2} + \dfrac{5}{2}i$

$S_{\mathbb{C}} = \left\{ -\dfrac{1}{2} + \dfrac{5}{2}i ; -\dfrac{1}{2} + \dfrac{1}{2}i \right\}$

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